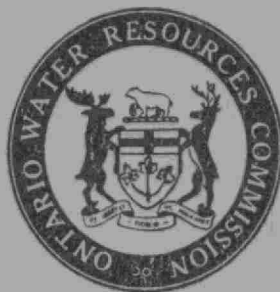


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THE  
ONTARIO WATER RESOURCES  
COMMISSION  
  
WATER POLLUTION SURVEY  
  
of the  
  
TOWN OF CARLETON PLACE  
  
COUNTY OF LANARK

1966

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Report on a water pollution  
survey of the town of Carleton  
Place in the county of Lanark.

80308

THE  
ONTARIO WATER RESOURCES  
COMMISSION

Report on a  
WATER POLLUTION SURVEY  
of the  
TOWN OF CARLETON PLACE  
in the  
COUNTY OF LANARK

Division of Sanitary Engineering

1 9 6 6

# WATER POLLUTION SURVEY

of the

## TOWN OF CARLETON PLACE

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## WATER POLLUTION SURVEY

of the

## TOWN OF CARLETON PLACE

### INTRODUCTION

On November 23, 24, 25, 1965, a water pollution survey was performed in the Town of Carleton Place. Surveys of this type are made by the Ontario Water Resources Commission for the purposes of locating and recording sources of existing and potential water pollution. Where these sources are noted, recommendations concerning their abatement are made to the parties concerned.

The appendices to the report include a tabulation of the results of the samples collected, a table indicating the efficiency of the municipal sewage disposal units, and a map of the town showing the sampling point locations.

### OFFICIALS CONTACTED

The assistance received from the following officials is gratefully acknowledged.

Mr. W. Whyte, Acting Clerk-Treasurer;  
Mr. J. D. Kean, Town Engineer;  
Dr. J. A. Johnston, Medical Officer of Health;  
Mr. R. McGregor, Carleton Place Works Department.

### THE TOWN OF CARLETON PLACE

#### General

The Town of Carleton Place is located at the junction of Highways 7, 15, and 29, approximately 25 miles south-west of the City of Ottawa. According to the 1965 Municipal Directory, the assessed population is 4,844.

### Water Supply

The municipal water supply source is the Mississippi River. Chlorine treatment is provided. A 108,000-gallon elevated tank is used for storage.

### Surface Water Drainage

Storm sewers, improved drains, and natural drains carry surface waters to the Mississippi River. Work was being completed on the construction of storm sewers by the Department of Highways in the northern area of the town during the survey.

The Mississippi River watershed is an extensive drainage area which has its upper reaches in the counties of Lennox and Addington, and Frontenac, where it is fed by a vast network of lakes and minor tributaries. It becomes a more defined watercourse where it enters Lanark County. It flows through the Town of Carleton Place in an easterly direction and continues for some 28 miles to its mouth at the Ottawa River.

### Sewage Disposal

Sanitary sewers carry raw sewage from the Town of Carleton Place to treatment facilities which consist of a septic tank located on Rosamond Street and an Imhoff tank on Lorne Street. The second appendix to this report contains a summary of the samples collected from these units during 1964 and part of 1965 indicating the treatment efficiency. Various inspection reports of these

facilities by the OWRC, have noted these units to be inadequate for the protection of the Mississippi River from pollution.

The municipality had been urged to report on the future development of sewerage works for the Town of Carleton Place, and during the latter part of 1965, it requested the OWRC to prepare and present a proposal to the corporation for the construction of a sewage treatment plant as a provincially-owned project. The Commission is presently acting on this request.

#### Private Sewage Disposal

Although not to a great extent, certain fringe areas employ septic tanks and subsurface disposal systems as a method of sewage disposal.

A source of water pollution relating to private sewage disposal methods is the sanitary waste discharge from the Nevermar Wood Products Limited plant. This plant is located on the small island at the end of Mill Street and employs approximately 16 persons. Sanitary wastes are discharged to the tailrace beside the plant via a submerged outfall. Reportedly, attempts are being made to secure a sanitary sewer connection.

#### Industry

The following is a list of the principal industries located in Carleton Place:



<u>Name of Firm</u>	<u>Product</u>
Carleton Lime Products	lime stone
Findlay Limited	stoves and furnaces
Kingsway Lumber	wholesale lumber
Leigh Instruments	electronics
Digital Equipment	computers
Ritchie Feed and Seed	livestock feeds
Rollark Limited	printing
Superior Propane	bottled gas
W. & S. Woodwork Company	mill, sash and door
Nevermar Wood Products Limited	cabinets and furniture
Colemans Mississippi Creamery Ltd.	dairy products
Maple Leaf Dairy	dairy products
Carleton Place Dairy Company Ltd.	dairy products

Any industrial wastes which may originate at the above plants are discharged to the municipal sanitary sewer system, with the exception of the private outfall from the Nevermar Wood Products Limited. No water pollution problems concerning these industries have been reported.

#### Garbage Disposal

The municipal garbage disposal site is located adjacent to the tailrace in an area bounded by Princess Street and Sussex Street. A landfill method is employed. It is quite conceivable that considerable run-off from this disposal site may enter the

tailrace although this was not observed during the survey. The area is rapidly becoming used up and alternate sites are presently being considered. Care should be taken to ensure that the new site will be located in an area which will not present a hazard to surface or ground waters. Incineration could also be considered.

#### Recreation

Fairly extensive use is made of the Mississippi River for swimming at the town park.

#### SAMPLING PROCEDURE

Samples were collected from the Mississippi River and any evident discharges thereto and submitted to the Ontario Water Resources Commission Laboratory for bacteriological examination and sanitary chemical analyses. Seasonal weather conditions prevailed during the survey.

#### INTERPRETATION AND SIGNIFICANCE OF SAMPLE RESULTS

The analyses employed to determine the quality of the samples collected were biochemical oxygen demand (BOD), solids, and the enumeration of coliform organisms.

##### Biochemical Oxygen Demand (BOD)

The BOD of sewage, industrial wastes, or polluted waters is the oxygen required during stabilization of the decomposable organic material by aerobic biochemical action. A 5-day BOD determination with incubation at 20° C is reported. A high BOD

is indicative of organic or chemical pollution. The Commission objective for surface water quality is an upper limit of four(4) parts per million (ppm).

#### Solids

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and dissolved matter in the water. Concentration of suspended solids which indicates the measure of undissolved solids of organic or inorganic nature is generally the most significant of the solids analyses in regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish.

#### Bacteriological Examination

The Membrane Filter technique is employed to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres (ml) of the sample. The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. The maximum limit of 2,400 coliform organisms per 100 millilitres is the OWRC objective for bacteriological quality of surface water in Ontario.

#### SAMPLE RESULTS

Satisfactory sample results were obtained from the river samples collected in the upstream section of the municipality.

During the summer months, high counts have been noted in this area due to summer cottages upstream having private sewage disposal facilities which may not be adequate.

Slightly high coliform counts were noted in the samples taken from two storm sewers, i.e., the outfall to the Mississippi River at the foot of Charles Street and the outfall to the tailrace at the foot of Neelin Avenue. However, these could not be interpreted as sewage pollution unless further samples were collected. It would appear that there may be some contamination of the improved ditch which outfalls to the tailrace at the foot of Lorne Street.

A high coliform count was noted in the tailrace downstream from the Imhoff tank outfall. It is obvious that the municipal sewage treatment facilities are the main sources of pollution in the municipality.

#### POLLUTION SOURCES

The following pollution sources are noted in the Town of Carleton Place.

##### Municipal

- Municipal septic tank located on Rosamond Street
- Municipal Imhoff tank located on Lorne Street
- The improved drainage ditch discharging to the tailrace at the foot of Lorne Street.

Private

- Sanitary waste outfall from the Nevermar Wood Products Limited to tailrace.

SUMMARY

It is evident that the main water pollution sources in the Town of Carleton Place are the municipal sewage treatment tanks. The town has requested the OWRC to proceed with a provincial sewage works scheme. This is presently being carried out.


Officials of Nevermar Wood Products Limited have indicated their intention to eliminate the plant sanitary waste outfall to the river, by securing a connection to the municipal sanitary sewer.

RECOMMENDATIONS

1. Efforts by the Town of Carleton Place should be continued towards the establishment of adequate sewage treatment works.

2. The Nevermar Wood Products Limited plant should take steps to secure a connection of its sanitary waste facilities to the municipal sanitary sewer system.

Approved by: \_\_\_\_\_

  
L. G. South,  
Acting District Engineer,  
Division of Sanitary Engineering.

Prepared by: M. M. Holy

/mh

APPENDIX I  
WATER POLLUTION SURVEY - TOWN OF CARLETON PLACE

<u>Sample Point No.</u>	<u>Description</u>	<u>Date</u>	<u>Coliforms per 100 ml.</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>		
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>
M. 27.2	Mississippi River downstream from Carleton Place	Nov. 24/65	84	1.5	138	4	134
M. 27.43-W	Dept. of Highways storm sewer outfall to Mississippi River near downstream limits	Nov. 24/65		NO FLOW			
M. 27.68-T	Municipal septic tank outfall to Mississippi River	Nov. 24/65	1,800	6.4	166	7	159
M. 27.73	Tailrace 100 ft. downstream from Imhoff tank outfall	Nov. 25/65	7,000	2.6	172	13	159
M. 27.75-W	Storm sewer outfall to tailrace at foot of Neelin Ave.	Nov. 24/65	15,300	0.8	442	2	440
M. 27.76-T	Municipal Imhoff tank outfall to tailrace	Nov. 24/65	46,000,000	60	344	47	297
M. 27.77-D	Improved drainage ditch outfall to tailrace at foot of Lorne Street	Nov. 24/65	216,000	2.2	366	4	362
M. 27.88-P	Private sanitary waste outfall from Nevermar Wood Products Ltd. Plant to tailrace			NO SAMPLE			
M. 28.06	Mississippi River at Main bridge	Nov. 23/65	46	1.3	138	2	136
M. 28.06-W	Storm sewer outfall to Mississippi River at Main bridge - (north-east side)	Nov. 23/65	3,900	1.6	154	3	151

APPENDIX I - continued

Sample Point No.	Description	Date	Coliforms per 100 ml.	5-Day BOD	S O L I D S			
					Total	Susp.	Diss.	
M. 28.11-W	Storm sewer outfall to Mississippi River near Findlay's Limited plant	NOT LOCATED						
M. 28.21-W	Storm sewer outfall to Mississippi River at foot of Charles Street	Nov. 24/65	13,000	INSUFFICIENT FLOW FOR CHEMICAL SAMPLE				
M. 28.25-W	Submerged storm sewer out- fall to Mississippi River at foot of Frank Street (vicinity sample)	Nov. 24/65	22	4.8	282	106	176	
M. 28.44	Mississippi River just downstream from municipal water works	Nov. 24/65	62	1.2	120	1	119	
M. 28.44-W	Storm sewer outfall to Mississippi River at foot of Joseph Street	Nov. 23/65		1.3	150	1	149	
M. 28.63	Mississippi River at park upstream from municipal water works	Nov. 24/65	8	0.7	142	1	141	

NOTE: All analyses are reported in ppm unless otherwise indicated.

APPENDIX II  
TOWN OF CARLETON PLACE  
SEWAGE ANALYSES RESULTS

<u>DATE</u>	<u>IMHOFF TANK</u>				<u>SEPTIC TANK</u>			
	<u>Raw</u> <u>BOD</u>	<u>Sewage</u> <u>S.S.</u>	<u>Final</u> <u>BOD</u>	<u>Effluent</u> <u>S.S.</u>	<u>Raw</u> <u>BOD</u>	<u>Sewage</u> <u>S.S.</u>	<u>Final</u> <u>BOD</u>	<u>Effluent</u> <u>S.S.</u>
June 2, 1964	51	54	16	20	53	64	3.6	14
July 6,	54	56	54	60	21	32	8.8	25
Aug. 4,	28	24	70	60	2300*	1992*	50	42
Sept. 8,	84	56	155	52	39	38	11	13
Oct. 5,	62	64	72	72	47	41	10	14
Nov. 2,	75	58	59	28	42	41	9.2	11
Dec. 7,	92	110	92	66	40	37	19	10
Jan. 4, 1965	160	171	112	127	68	37	14	6
Feb. 1,	88	63	98	26	54	41	54	9
Mar. 1,	110	114	110	109	20	25	28	13
April 5,	72	114	68	106	40	79	15	16
AVERAGE	79.6	80.4	82.4	66.0	42.4	43.5	20.2	15.7

\*OMITTED AS UNREPRESENTATIVE

PLANT EFFICIENCY

IMHOFF TANK

% Removal - BOD - 0 (increase in BOD indicated)  
 - S.S.- 17.0

SEPTIC TANK

% Removal - BOD - 52.3  
 - S.S.- 63.9